IE6600 19905 Project Guidelines

# Requirements

The project is to develop a data visualization web app with Dash that implements features to address certain user stories chosen by the team.

If you are not familiar with user stories, please read the following articles:

* [What is a user story](https://www.mountaingoatsoftware.com/agile/user-stories)
* [User stories examples](https://tech.gsa.gov/guides/user_story_example/)

## User Stories

At least three user stories should be stated for the web app. The user stories capture the requirements of the projects (i.e., what problems the project tries to address and/or features to provide). Think from a user’s perspective what she/he needs/requires from the chosen data source and translate the needs/requirements into user stories. The user stories should be included in your project proposal.

## Design

Document your design of your web app that is supposed to provide the features captured in the user stories in your project. Think from an engineer’s perspective how you would deliver the features to address the needs in the user stories. The design should be included in your project proposal.

## Technical Specifications

While implement your web app, incorporate the following technical elements into it:

| Technical Element | Descriptions / Remarks |
| --- | --- |
| User Stories (>= 3) | The features of the web app in terms of user stories  At least one of the user stories should be about data insights/analytics |
| Data Extraction | The web app should use all these processing steps in preparing data for visualization |
| Data Transformation |
| Data Loading |
| Data Wrangling |
| UI (User Interface) Front End | The app should include a functional front end with interactive UI widgets. |
| Data Visualization with Interactivity | Include data visualization features into your web app to help deliver the insights & analytics of the data to address the user stories |
| Data Insights and Analytics | Include the computation of data insights and analytics into your web app that address the needs in the user stories |
| Project Complexity | Project complexity should be appropriate to the 6000-level class and the materials covered in the class |
| Project Efforts | Each team member is expected to spend >= 8 hours into the project |

## Dataset

Feel free to select a dataset **ONLY** from the following database:

• Gapminder <https://www.gapminder.org/data/>

• Census Bureau <https://data.census.gov/cedsci/>

• U.S. census data and stats <https://www.usa.gov/statistics>

• FDA (openFDA project launched by FDA) <https://open.fda.gov/data/downloads/>

• Stanford Network Dataset <https://snap.stanford.edu/data/>

• UCI Machine Learning dataset <https://archive.ics.uci.edu/ml/index.php>

• CDC <https://www.cdc.gov/datastatistics/index.html>

• WHO <https://www.who.int/data>

• World Bank <https://data.worldbank.org/>

# Timeline and Deliverables

## Team Arrangement (registration open 11/03, due 11/10, 11:59 pm PT)

The project will be performed in teams. Students can form teams freely. In general each team should be in the size of 3 students. Once you form a team of 3, please register your team in the [canvas](https://northeastern.instructure.com/courses/124175/groups). Once 12 teams have been registered in the spreadsheet, the remaining 2 students will be assigned to 2 of the 12 teams.

## Project Proposal (due 11/17, 11:59 pm PT)

Each team only needs to submit one 2-page proposal as a .pdf file to the Canvas. The submission should be made by the team lead of each team.

The 2-page proposal should include the following sections:

1. Project Title

2. Names of all team members

3. Overview:

* Describe why you choose a specific dataset and what the problem you are trying to solve in general
* State at least three user stories and acceptance criteria
* Describe prior art and innovations of your project (if applicable). For example, if you know similar/relevant work have been carried out previously, describe why you think what you are proposing add new values to the existing work

4. Design: For each of the user stories, describe how you plan to implement your web app to address the needs/features. Your plan should include some technical details of your proposed methods/techniques for addressing the needs of the user stories. These methods/techniques may include, for example, your data tidying, creating function/algorithm, data processing, and data visualization, UI design, etc.

## Project Presentation (12/15, in class)

Each team will present an in-class presentation for 15 minutes during the last week. Each team member is expected to speak during the presentation. The elements for the presentation as follow:

| Introduction | Why did you choose this problem?  What are the user stories?  What is your design? |
| --- | --- |
| Data Set | Introduce the background, and structure of your data set |
| Implementation | Details of your implementation |
| Web App Demo | A live demo of your web app |
| Results/Insights/Analytics | Present the results that can be generated from your web app |
| Conclusions/Discussion | Discussion and conclusions should be rational and useful |
| Team Collaboration | All the team members are supposed to be involved in and contribute to the project.  Each team member is expected to speak during the presentation |
| Presentation Slides | Besides the web app, each team should prepare slides for use in the presentation |

## Project Files Submission (12/15, 11:59 pm PT)

Four types of project files should be submitted. The following three should be submitted by each team:

1. Presentation Slides (**please convert it into PDF**)
2. Web app in terms of colab notebook(s) (**in the format of \*.ipynb**)
3. [Across-team peer review scoresheet](https://docs.google.com/spreadsheets/d/1oK3GxfC1XLC1WSDKiBzVAQ7uU-vbQ1GZ4x90gdqNLqU/edit#gid=0) (i.e., you score other teams for their work) (**please submit as \*.xlsx format**)

The following file should be submitted by each team member:

1. [Within-team peer review scoresheet](https://docs.google.com/spreadsheets/d/1EBuwCanyIevpLgS6FMx5_tk2Trj2iQrjCIr-spcVtxA/edit#gid=0) (i.e, you score other team members in your team) (**please submit as \*.xlsx format**)

## Project Grading

The project accounts for 30 percentage points towards your final grade. The grading scheme of the project is shown below:

| Component | Percentage Points |
| --- | --- |
| Per-team scores | |
| Proposal | 5 |
| Presentation & Demo | 15 |
| [Across-team Peer Review](https://docs.google.com/spreadsheets/d/1oK3GxfC1XLC1WSDKiBzVAQ7uU-vbQ1GZ4x90gdqNLqU/edit#gid=0) | 5 |
| Per-member score | |
| [Within-team Peer Review](https://docs.google.com/spreadsheets/d/1EBuwCanyIevpLgS6FMx5_tk2Trj2iQrjCIr-spcVtxA/edit#gid=0) | 5 |